



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,249	06/09/2006	Daisuke Kumaki	0756-7702	4819
31780 7590 12/01/2009				
ERIC ROBINSON				
PMB 955				
21010 SOUTHBANK ST.				
POTOMAC FALLS, VA 20165				
EXAMINER				
CAO, PHAT X				
ART UNIT		PAPER NUMBER		
2814				
MAIL DATE		DELIVERY MODE		
12/01/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/582,249

Applicant(s)

KUMAKI ET AL.

Examiner

Phat X. Cao

Art Unit

2814

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7, 16, 17, 22-24, 28, 37 and 38 is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-15, 18-21, 25-27 and 29-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/30/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6, 8-15, 18-21, 25, and 29-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Liao et al (US 6,717,358).

Regarding claims 1-2 and 4, Liao (Figs. 1-2) discloses a light emitting device comprising: 130 (N-1) connecting unit comprising: a first layer 133 of p-type semiconductor (Fig. 2) comprising a first substance and a second substance (column 8, lines 15-55) and a second layer 131 of n-type semiconductor (Fig. 2) comprising a third substance and a fourth substance (column 7, lines 45-67 through column 8, lines 1-15); and 120 (N-1) EL unit formed under 130 (N-1) connecting unit and comprising multilayer structures HIL/HTL/LEL/ETL (column 5, lines 61-67), multilayer structures HIL/HTL/LEL/ETL including a third layer comprising a light emitting layer substance LEL; wherein the first layer 133, the second layer 131 and the third layer LEL are interposed between a first electrode 140 and a second electrode 110; wherein the second layer 131 is interposed between the first layer 133 and the third layer LEL; wherein the first layer 133 is in electrically contact with the first electrode 140; and wherein the light emitting element emits light when a voltage is applied between the first

electrode 140 and the second electrode 110 such that a potential of the second electrode (anode) is higher than that of the first electrode (cathode).

Regarding claim 5, Liao (Figs. 1-2) discloses a light emitting device comprising: 130 (N-1) connecting unit comprising: a first layer 132/133 of p-type semiconductor (Fig. 2) comprising a first substance (133: NPB – column 8, lines 15-55) and a second substance (132: molybdenum oxide - column 8, lines 56-67 through column 9, lines 1-15) and a second layer 131 of n-type semiconductor (Fig. 2) comprising a third substance (ALq - column 7, lines 45-59) and a fourth substance (Li - column 7, lines 60-67 through column 8, lines 1-15); and 120 (N-1) EL unit formed under 130 (N-1) connecting unit and comprising multilayer structures HIL/HTL/LEL/ETL (column 5, lines 61-67), multilayer structures HIL/HTL/LEL/ETL including a third layer comprising a light emitting layer substance LEL; wherein the first layer 132/133, the second layer 131 and the third layer LEL are interposed between a first electrode 140 and a second electrode 110; wherein the second layer 131 is interposed between the first layer 132/133 and the third layer LEL; wherein the first layer 132/133 is in electrical contact with the first electrode 140; and wherein the light emitting element emits light when a voltage is applied between the first electrode 140 and the second electrode 110 such that a potential of the second electrode (anode) is higher than that of the first electrode (cathode).

Regarding claims 3, 6, 8-15, and 25, Liao (Figs. 1-2) further discloses that a molar ratio of the second substance to the first substance is 0.01 to 20 (column 7, lines

33-43), and the light emitting element is incorporated into a display portion of an electronic appliance (column 2, lines 1-15).

Regarding claims 18-21 and 29-36, Liao (Figs. 1-2) further discloses that the third layer is in contact with the second electrode 110, the first layer 132/133 is in contact with the second layer 131, and the second layer 131 is in contact with the third layer.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al (US 6,717,358).

Liao discloses that the first substance (hole transporting layer) is NPB or TPD (column 8, lines 15-34) but does not disclose that the first substance is DNTPD.

However, it has been held that selecting a known material on the basis of its suitability for the intended use is a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. There was absent evidence of disclosure of criticality for selecting a first substance including DNTPD as claimed. Therefore, it would have been obvious to substitute DNTPD as claimed for the first substance of Liao because of their equivalence for their use in the semiconductor art as the hole transporting materials and the selection of any of these known equivalents to be used as a hole transporting

material for the first substance of Liao would be within the level of ordinary skill in the art.

Allowable Subject Matter

5. Claims 7, 16-17, 22-24, 28, and 37-38 are allowed.

The prior art of record neither anticipates nor renders obvious all of the limitations recited in the base claim 7, including a thickness of the first layer and a thickness of the second layer satisfying expressions as claimed.

Response to Arguments

6. Applicant's arguments filed 7/30/09 have been fully considered but they are not persuasive.

With regard to the rejections under Liao, Applicant argues that Liao's Fig. 1 does not suggest "the first layer is in contact with the first electrode" as claimed because EL unit 120.N is provided between the connecting unit 130.(N-1) and the cathode 140.

It appears that Applicant argues that the first layer must be in direct and physical contact with the first electrode. However, the limitation on which Applicant relies (i.e., direct and physical contact) is not stated in the claims. It is the claims that define the claimed invention, and it is claims, not specifications that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Ins.*, 7 USPQ2d 1064. Furthermore, it should be noted that claims in a pending application should be given their broadest reasonable interpretation. *In re Pearson*, 494F. 2d 1399, 181 USPQ 641 (CCPA 1974). Therefore, as broadly interpreted, the limitation "the first layer is in contact with the first electrode" as claimed does not exclude the first layer is in

electrical contact with the first electrode. Therefore, Liao's Fig.1 does suggest the invention as claimed.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (571)272-1703. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571)272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. X. C./
Primary Examiner, Art Unit 2814

/Phat X. Cao/
Primary Examiner, Art Unit 2814